Amendments to the Drawings:

The attached Replacement sheet of drawings for Figures 4 and 5 is submitted in response to the drawing objections as to agreement between labels in the drawings and the specification, as detailed in the Office Action. Approval and entry are respectfully requested, and withdrawal of the objections is respectfully requested.

REMARKS

With the cancellation of claim 13 and the addition of claim 24, claims 12 and 14 to 24 are now pending (since claims 1 to 11 were previously canceled).

It is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the present application is respectfully requested.

Applicants thank the Examiner for acknowledging the claim for foreign priority and for the indication that all certified copies of the priority documents have been received.

Applicants thank the Examiner for considering the previously filed Information Disclosure Statement, PTO-1449 paper, and cited references, but note that the Examiner has not indicated that one of the listed references, *i.e.*, "A Novel Supply Network Architecture for Powerline Communications in Automobiles," has been considered. Applicants respectfully request an indication of consideration of this reference with the next Office communication.

In response to the objections to the drawings, a Replacement sheet of drawings is submitted to address the objections as to agreement between labels in the drawings and the specification. Approval and entry are respectfully requested. Withdrawal of the objections is therefore respectfully requested.

Claim 15 was objected to as assertedly reciting subject matter for which no disclosure was provided. Applicants respectfully traverse this assertion. Connection of a central litz wire at both its ends to a vehicle body is described and disclosed in the Specification, e.g., at page 3, lines 12 to 14; page 5, lines 10 to 14; and page 6, lines 23 to 24 with reference to measurements represented in Fig. 6b. Furthermore, Fig. 4 shows one of the connections of the central litz wire to the vehicle body. While the connection of the second side is not illustrated, it is respectfully submitted that these features do not need to be shown because under 37 C.F.R. § 1.81 (a) — to which § 1.83 (a) is subject — an applicant is only "required to furnish a drawing of [the] invention where necessary for the understanding of the subject matter sought to be patented." It is respectfully submitted that the feature of the connection of the second side of the litz wire to the vehicle body is fully described by the specification and/or would be understood by a person having ordinary skill in the art, so that drawings of this aspect is not necessary, especially since the connection of one of the sides is illustrated. Withdrawal of the objection claim 15 is therefore respectfully requested.

Claim 16 was objected to for assertedly being "unclear" since it recites "an annular core including a ferritic material." The Office Action asserts that "the core does not 'include' a ferritic material but rather is composed of the material." The Examiner apparently incorrectly believes that including and being composed of are mutually exclusive. If an object is composed of 'x', then it also includes 'x'. For example, if a house is made of wood, then it is correct to state that the house includes wood. Claim 16 properly provides that the annular core includes a ferritic material. One instance where the annular core may include a ferritic material is where the annular core is composed of a ferritic material.

Simply because claim 16 does not more narrowly recite that the annular core is composed of the ferritic material, this does not render the claim unclear. To the extent that the objection is based on the Examiner's belief that the claim is overbroad, it is noted that the breadth of the claim is an inappropriate basis for an objection to the claim. As § 2173.04 of the MPEP, entitled "Breadth Is Not Indefiniteness," states: "Breadth of a claim is not to be equated with indefiniteness." (See also *In re Miller*, 169 USPQ 597 (CCPA 1971)). Regardless of breadth, if the scope of the subject matter embraced by the claims is clear, and if Applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims are proper. MPEP § 2173.04.

A claim therefore may be broad and may also clearly demarcate to those of ordinary skill in the art the boundaries of the claimed subject matter. The claims in this application set forth what Applicants consider to be their claimed subject matter. To establish that these claims are too broad, that is, that the claim scope is more than what Applicants are entitled to under the Patent Act, specific evidence in the form of references or other publications must be provided by the Patent and Trademark Office. Therefore, the issue of breadth is one that pertains not to the understandability of the claims (since claims that are broad are not inherently indefinite or unclear), but to the outer limits of what Applicants are entitled to exclude others from making, using, or selling, limits which are bounded by what is in the public domain and also by what others have already staked out for themselves as their own property.

That is, the proper rubrics for examining the issue of breadth are those of anticipation and obviousness under §§ 102 and 103. Since claim 16 is already clear and

would be understood by one skilled in the art, no amendment to claim 16 is deemed necessary. Withdrawal of the objection to claim 16 is therefore respectfully requested.

Claim 18 has been rewritten without prejudice to obviate the present objection. Withdrawal of the objection to claim 18 is therefore respectfully requested.

Claims 12 to 14 were rejected under 35 U.S.C. § 112 as indefinite.

As to claim 12, the gist of this rejection is that the Examiner apparently does not understand the portion of claim 12, which provides that "supply lines arranged in a star structure and having at least ine star point." In particular, the Office Action apparently incorrectly indicates the recited star structure to refer to an individual line, rather than to the "supply lines." Notwithstanding this, Applicants respectfully submit that this claim is readily understood by those of ordinary skill in the art. Claims are not to be read in a vacuum, but in light of the specification. When the claim is read in light of what the specification discloses (see page 2, lines 13 to 16, and page 4, line 34 to page 5, line 3), Applicants submit that one of ordinary skill in the art would be able to discern the scope of claim 12. The specification (see page 2, lines 13 to 16, and page 4, line 34 to page 5, line 3) refers to a star network topology having at least one central point that forms a star point. One skilled in the art would understand that the star structure and the at least one star point refer to a star topology when considering the context — supply lines — and that which the specification discloses.

For the Examiner's convenience, attached hereto are two documents which provide a description of a star topology (see David A. Stamper, "Business Data Communication" 294-95, The Benjamin/Cummings Publishing Company, Inc. (4th ed. 1994); and Florida Center for Instructional Technology College of Education, University of South Florida, "An Educator's Guide to School Networks", Chapter 5 "Topology" (1997-2005), http://fcit.usf.edu/network/chap5/chap5.htm).

In view of the foregoing, it is respectfully submitted that claim 12 is definite. Reversal of this rejection is therefore respectfully requested.

As an initial matter, claim 13 has been canceled herein without prejudice, rendering moot the present rejection with respect to claim 13, since claim 12 now includes some of the features of claim 13.

Furthermore, to facilitate matters, claim 14 has been rewritten without prejudice so that it does not refer to the high-frequency technology, thereby rendering moot the present rejection with respect to this feature.

The Office Action asserts that the claims are unclear because it is unclear what the claims refer to as to the specification. While support for the features in the claim must be provided, claims need not and do not refer to the specification. The claims recite a capacitor by which outer litz wires are short-circuited. This is clear and unambiguous. The features recited in the claims are supported by that which the specification teaches, e.g., at page 3, lines 4 to 7, and page 5, lines 5 to 8, and by that which is illustrated in the drawings, e.g., Fig. 2. The particular structure or configuration discussed in the specification, however, are provided by way of example, and are not to be read into the claims.

Furthermore, the claims need not be more narrowly written to provide the specifics as to how the capacitors are provided. To the extent that the present rejections are based on the Office's belief that the claims are overbroad, as explained above, § 2173.04 of the MPEP, entitled "Breadth Is Not Indefiniteness," states: "Breadth of a claim is not to be equated with indefiniteness." (See also *In re Miller*, 169 USPQ 597 (CCPA 1971).) Regardless of breadth, if the scope of the subject matter embraced by the claims is clear, and if Applicants have not otherwise indicated that they intend the claimed subject matter to be of a scope different from that defined in the claims, then the claims are proper. MPEP § 2173.04. A claim therefore can both be broad and, at the same time, clearly demarcate to those of ordinary skill in the art the boundaries of the claimed subject matter. To establish that claims are too broad (that is, that the claim scope is more than what Applicants are entitled to under the Patent Act) specific evidence in the form of references or other publications must be provided by the Patent and Trademark Office. Therefore, the issue of breadth is one that pertains not to the understandability of the claims (since claims that are broad are not inherently indefinite or unclear) but to the outer limits of what Applicants are entitled to exclude others from making, using, or selling, limits which are bounded by what is in the public domain and also by what others have already staked out for themselves as their own.

That is, the proper rubrics for examining the issue of breadth are those of anticipation and obviousness under §§ 102 and 103. Since the claims are already clear and would be understood by one skilled in the art as referring to capacitors by which outer litz wires are short-circuited, no amendment to the claims is deemed necessary. Withdrawal of this rejection to the claims is therefore respectfully requested.

Claim 12 was rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 3,973,227 (the "Erculiani" reference).

As regards the anticipation rejections of the claims, to reject a claim under 35 U.S.C. § 102, the Office must demonstrate that each and every claim feature is identically described or contained in a single prior art reference. (See *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991)). As explained herein, it is respectfully submitted that the Office Action does not meet this standard, for example, as to all of the features of the claims. Still further, not only must each of the claim features be identically described, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed subject matter. (See *Akzo, N.V. v. U.S.I.T.C.*, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986)).

As further regards the anticipation rejections, to the extent that the Office Action may be relying on the inherency doctrine, it is respectfully submitted that to rely on inherency, the Examiner must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics *necessarily* flows from the teachings of the applied art." (See M.P.E.P. § 2112; emphasis in original; and see *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Int'f. 1990)). Thus, the M.P.E.P. and the case law make clear that simply because a certain result or characteristic may occur in the prior art does not establish the inherency of that result or characteristic.

Claim 12 relates to a supply line structure ***to supply energy*** to electrical components of an automotive vehicle ***and to transmit information*** between at least some of the electrical components. Claim 12 provides for ***supply lines*** arranged in a ***star structure*** and having at least one star point. Claim 12, which has been rewritten without prejudice to include some of the features of canceled claim 13, also provides for ***capacitors by which outer litz wires are short-circuited with respect to each other***.

The "Erculiani" reference provides for a communication system having transmission lines. The "Erculiani" reference does not identically disclose (or even suggest) ***supply*** lines that supply energy and also transmit information having the features provided in claim 12. Furthermore, the "Erculiani" reference does not identically disclose (or even suggest) an arrangement of the lines in a star structure or a star point. Furthermore, the "Erculiani" reference does not identically disclose (or even suggest) capacitors by which outer litz wires are short-circuited with respect to each other.

Thus, the "Erculiani" reference does not identically disclose (or even suggest) each feature of claim, so that it does not anticipate claim 12. Withdrawal of the anticipation rejection of claim 12 is therefore respectfully requested.

Claim 15 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Erculiani" reference and U.S. Patent No. 6,249,060 (the "Osha" reference).

As regards the obviousness rejections of the claims, to reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 15 depends from claim 12 and since the "Osha" reference does not cure the deficiencies of the "Erculiani" reference, as explained above, it is respectfully submitted that claim 15 is allowable for the same reasons as claim 12, as presented.

Furthermore, claim 15 provides that the central litz wire at both ends thereof is connected to a vehicle body. The "Osha" reference provides for separate lines for communication, voltage supply, and ground. The "Osha" reference does not disclose or suggest a supply and communication line that is connected to ground. Further, the "Osha" reference does not disclose or suggest a connection of a line to a vehicle body, let alone such a connection at both ends of the line. Thus, even if the transmission line of the "Erculiani" reference is modified to include the features of the "Osha" reference, the features of claim 15 would not be obtained. Since the "Erculiani" and "Osha" references, whether taken alone or in combination, do not disclose or suggest the features as provided for in the context of claim 15 or provide any motivation to modify the "Erculiani" and "Osha" references to obtain a supply line structure including each feature of claim 15, the present rejection is apparently based on nothing more than improper hindsight, which cannot support an obviousness rejection. For this additional reason, it is respectfully submitted that the combination of the "Erculiani" and "Osha" references does not render unpatentable claim 15.

Withdrawal of the obviousness rejection of claim 15 is therefore respectfully requested.

Claims 16 to 18 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Erculiani" reference and U.S. Patent No. 3,300,682 (the "Frungel et al." reference).

Claims 16 to 18 ultimately depend from claim 12 and since the "Frungel et al." reference does not cure the deficiencies of the "Erculiani" reference, as explained above, it is respectfully submitted that claims 16 to 18 are allowable for the same reasons as claim 12, as presented.

Withdrawal of the obviousness rejections of claims 16 to 18 is therefore respectfully requested.

Claims 19 and 20 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Erculiani" reference and U.S. Patent No. 6,495,763 (the "Eichmann et al." reference).

Claims 19 and 20 depend from claim 12 and since the "Eichmann et al." reference does not cure the deficiencies of the "Erculiani" reference, as explained above, it is respectfully submitted that claims 19 and 20 are allowable for the same reasons as claim 12, as presented.

Withdrawal of the obviousness rejections of claims 19 and 20 is therefore respectfully requested.

Claim 21 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Erculiani" reference and U.S. Patent No. 4,642,417 (the "Ruthrof et al." reference).

Claim 21 depends from claim 12 and since the "Ruthrof" reference does not cure the deficiencies of the "Erculiani" reference, it is respectfully submitted that claim 21 is allowable for the same reasons as claim 12, as presented.

Withdrawal of the obviousness rejection of claim 21 is therefore respectfully requested.

Claims 22 and 23 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Erculiani" reference and U.S. Patent Application publication No. 2002/0030249 (the "Yoshida et al." reference).

Claims 22 and 23 depend from claim 12 and since the "Yoshida" reference does not cure the deficiencies of the "Erculiani" reference, it is respectfully submitted that claims 22 and 23 are allowable for the same reasons as claim 12, as presented.

Withdrawal of the obviousness rejections of claims 22 and 23 is therefore respectfully requested.

New claim 24 does not add any new matter and is supported in the specification. Claim 24 depends from claim 12, and is therefore allowable for the same reasons as claim 12, as presented.

Accordingly, all of pending claims 12 and 14 to 24 are allowable.

Conclusion

In view of the foregoing, it is respectfully submitted that all of claims 12 and 14 to 24 are allowable. It is therefore respectfully requested that the objections and rejections be withdrawn. Prompt reconsideration and allowance of the present application are therefore respectfully requested.

Respectfully submitted,

Dated: 7/6/2006

By: _____
Gerard A. Messina
Reg. No. 35,952

KENYON & KENYON LLP
One Broadway
New York, New York 10004
(212) 425-7200

CUSTOMER NO. 26646

WAN TOPOLOGIES

Network topologies come in several varieties, which are defined by how the nodes are connected: star, hierarchical, interconnected, ring, bus, or combinations of these.

Star Network

star network A network topology using a central system to which all other nodes are connected. All data is transmitted to or through the central system.

In a star network, the central or hub node serves as a message switch by accepting a message from the originating node and forwarding it to the destination node, as illustrated in Figure 9-1. A star configuration has several advantages. First, it provides a short path between any two nodes with a maximum of two links, or hops, to traverse. The time needed for the message to go from the central node to a peripheral node or vice versa is even shorter because only one hop is required to get from source to destination. On the other hand, having the central node involved in the transmission of every message can lead to congestion at the central site. This causes consequent message delays, and such congestion is exacerbated when the central node is functioning for more than just message switching. If the central node is also the central processing system, as is frequently the case, higher priority processing requirements could make the processor temporarily unable to attend to communications functions. This problem is more likely to occur in a uniprocessor system than in a multiple-processor system.

A star configuration also provides the user with a high degree of network control. Because the central node is in direct contact with every other node and all messages flow through it, a centralized location exists for message logging, gathering of network statistics, and error diagnostics and recovery. However, this centralized control and dependence on a centralized system sometimes is considered a disadvantage rather than an advantage. In a corporate network, having a centralized system may be consistent with a centralized management control philosophy. Close control of all other data-processing centers by a main data-processing center may be consistent with corporate management objectives. In a network of peer organizations, having one organization act as a point of centralized control may be undesirable. Consider a network of major universities, where it may be difficult to reach agreement as to which university will serve as the centralized controller. Even after the decision is made, dependence on one data center for communications services may be undesirable for the other nodes.

Expanding a star network is a relatively simple procedure because only the new node and the central node need to be involved. It simply requires obtaining the communications link, connecting the two, and updating the network tables in the other nodes. Some instances also require that a new system generation be performed for the other nodes. A new system generation is usually required if adding a new node exceeds the limits of memory allocated to the network routing tables. For relatively dynamic networks it is common to allocate space for potential nodes to reduce the number of system generations that must be performed.

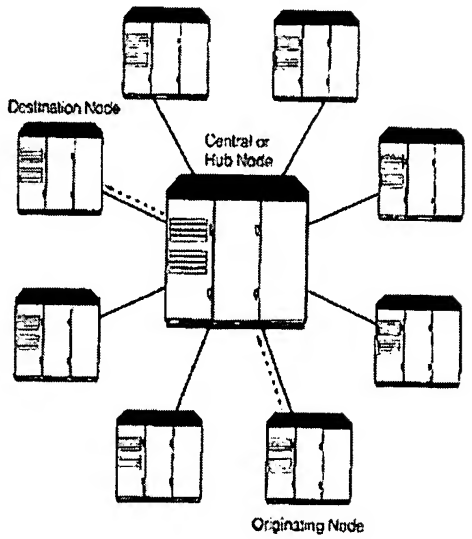

Figure 9-1
A Star Configuration

Star systems have a relatively low reliability. The loss of the central node is equivalent to loss of the network. Failure of a peripheral node has little impact on the network as a whole, however, as only messages bound for that node are undeliverable. The best candidate for the central node is a fault-tolerant system that is almost immune to failure.

Star systems have the additional disadvantage in a long-distance network of possibly higher circuit costs. This is exemplified in the case study at the end of this chapter, in which the point-to-point configuration has a monthly circuit cost almost $1500 higher than that of the minimum media distance configuration. This is particularly true when the centralized node is not geographically in the center of the network. Other topologies are better able to configure the links between nodes so the distance spanned by the media is minimized.

Hierarchical Network

hierarchical topology A network topology in which the nodes are arranged hierarchically. Also known as a tree structure.

Hierarchical topology, shown in Figure 9-2, is also referred to as a tree structure. Directly connected to the single root node (Node A) are several nodes at the second level. Each of these can have several cascaded nodes attached. This type of network, often found in corporate computer networks, closely resembles corporate organization charts. With the corporate computer center as the root node, division systems are attached directly to the root, regional systems to divisional systems, districts to regions, and so on. Corporate reports from

Chapter 5

Topology

What is a Topology?

The physical topology of a network refers to the configuration of cables, computers, and other peripherals. Physical topology should not be confused with logical topology which is the method used to pass information between workstations. Logical topology was discussed in the Protocol chapter .

Main Types of Physical Topologies

The following sections discuss the physical topologies used in networks and other related topics.

- Linear Bus
- Star
- Star-Wired Ring
- Tree
- Considerations When Choosing a Topology
- Summary Chart

Linear Bus

A linear bus topology consists of a main run of cable with a terminator at each end (See fig. 1). All nodes (file server, workstations, and peripherals) are connected to the linear cable. Ethernet and LocalTalk networks use a linear bus topology.

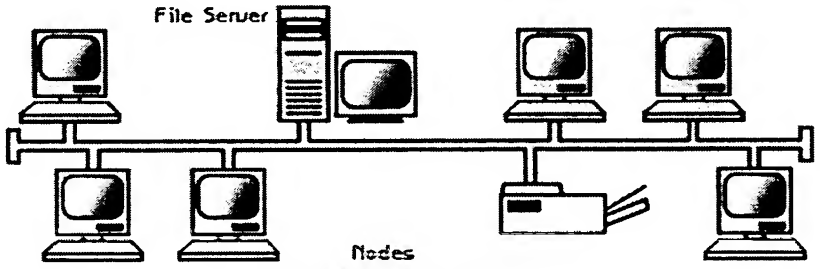

Fig. 1. Linear Bus topology

Advantages of a Linear Bus Topology

- Easy to connect a computer or peripheral to a linear bus.
- Requires less cable length than a star topology.

Disadvantages of a Linear Bus Topology

- Entire network shuts down if there is a break in the main cable.
- Terminators are required at both ends of the backbone cable.
- Difficult to identify the problem if the entire network shuts down.
- Not meant to be used as a stand-alone solution in a large building.

Star

A star topology is designed with each node (file server, workstations, and peripherals) connected directly to a central network hub or concentrator (See fig. 2).

Data on a star network passes through the hub or concentrator before continuing to its destination. The hub or concentrator manages and controls all functions of the network. It also acts as a repeater for the data flow. This configuration is common with twisted pair cable; however, it can also be used with coaxial cable or fiber optic cable.

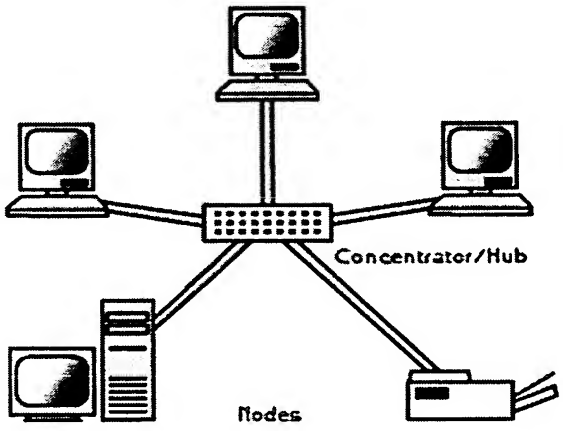

Fig. 2. Star topology

Advantages of a Star Topology

- Easy to install and wire.
- No disruptions to the network then connecting or removing devices.
- Easy to detect faults and to remove parts.

Disadvantages of a Star Topology

- Requires more cable length than a linear topology.
- If the hub or concentrator fails, nodes attached are disabled.
- More expensive than linear bus topologies because of the cost of the concentrators.

The protocols used with star configurations are usually Ethernet or LocalTalk. Token Ring uses a similar topology, called the star-wired ring.

Star-Wired Ring

A star-wired ring topology may appear (externally) to be the same as a star topology. Internally, the MAU (multistation access unit) of a star-wired ring contains wiring that allows information to pass from one device to another in a circle or ring (See fig. 3). The Token Ring protocol uses a star-wired ring topology.

Tree

A tree topology combines characteristics of linear bus and star topologies. It consists of groups of star-configured workstations connected to a linear bus backbone cable (See fig. 4). Tree topologies allow for the expansion of an existing network, and enable schools to configure a network to meet their needs.

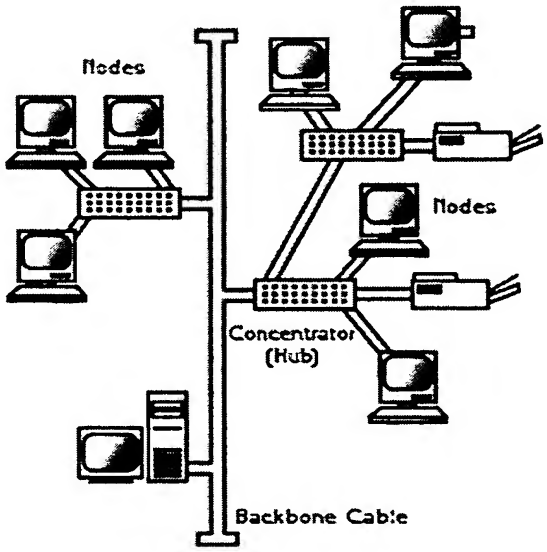

Fig. 4. Tree topology

Advantages of a Tree Topology

- Point-to-point wiring for individual segments.
- Supported by several hardware and software venders.

Disadvantages of a Tree Topology

- Overall length of each segment is limited by the type of cabling used.
- If the backbone line breaks, the entire segment goes down.
- More difficult to configure and wire than other topologies.

5-4-3 Rule

A consideration in setting up a tree topology using Ethernet protocol is the 5-4-3 rule. One

aspect of the Ethernet protocol requires that a signal sent out on the network cable reach every part of the network within a specified length of time. Each concentrator or repeater that a signal goes through adds a small amount of time. This leads to the rule that between any two nodes on the network there can only be a maximum of 5 segments, connected through 4 repeaters/concentrators. In addition, only 3 of the segments may be populated (trunk) segments if they are made of coaxial cable. A populated segment is one which has one or more nodes attached to it . In Figure 4, the 5-4-3 rule is adhered to. The furthest two nodes on the network have 4 segments and 3 repeaters/concentrators between them.

This rule does not apply to other network protocols or Ethernet networks where all fiber optic cabling or a combination of a fiber backbone with UTP cabling is used. If there is a combination of fiber optic backbone and UTP cabling, the rule is simply translated to 7-6-5 rule.

Considerations When Choosing a Topology:

- **Money.** A linear bus network may be the least expensive way to install a network; you do not have to purchase concentrators.
- **Length of cable needed.** The linear bus network uses shorter lengths of cable.
- **Future growth.** With a star topology, expanding a network is easily done by adding another concentrator.
- **Cable type.** The most common cable in schools is unshielded twisted pair, which is most often used with star topologies.

Summary Chart:

Physical Topology	Common Cable	Common Protocol
Linear Bus	Twisted Pair Coaxial Fiber	Ethernet LocalTalk
Star	Twisted Pair Fiber	Ethernet LocalTalk
Star-Wired Ring	Twisted Pair	Token Ring
Tree	Twisted Pair Coaxial Fiber	Ethernet

Table of Contents Chapter 1 || Chapter 2 Chapter 3 || Chapter 4 Chapter 5 '| Chapter 6
Glossary || Next